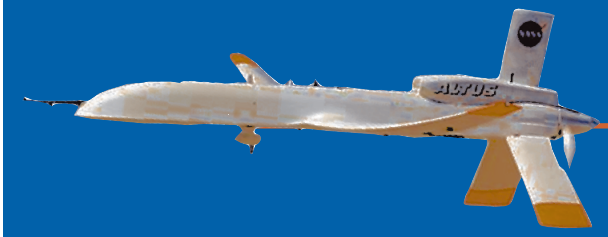

The ALTUS Cumulus Electrification Study (ACES)

Investigation of Thunderstorms Using Combined UAV and Ground-Based Measurement Systems

Fact Sheet

Mission Overview

- Multi-year effort to study thunderstorms using General Atomic's ALTUS UAV
- Exploit unique capabilities of ALTUS to conduct storm studies
- End-to-end experiment encompassing data collection, archival, analysis, and distribution.

Key Science

- Investigate lightning relationships and storm morphology
- Provide critical TRMM Lightning Imaging Sensor validation
- Study storm electrical budgets
- Benefit science relevant to NASA Earth Science themes.

Experiment Design

- Conduct missions at the NASA/Kennedy Space Center to take advantage of ground-based experiment
- Provide close coordination with ground-based storm study to enhance science return for both programs
- Field campaigns planned for summer 2002 and 2003.

Demonstration Component

- Demonstrate the utility and promise of UAVs for investigating thunderstorms and other weather phenomena
- Provide demonstration of real-time monitoring and control of UAV science payload

Education and Public Outreach

- Develop interactive science lesson plans at three grade levels to inspire next-generation scientists and engineers
- Support public and education outreach via traditional media and exciting Web sites.

Heritage

- ACES sensors field tested on aircraft and rocket platforms ensuring reliability and performance
- Payload developed and successfully flown as SBIR technology demonstration
- ALTUS derived from UAV system with over 22,000 hours fleet experience.

Budget

- Total $4,491K, Year 1 $588, Year 2 $2,005, Year 3 $1,582, Year 4 $316
- Leverage ground-based observing facilities at no cost to project.